

D_{hi} =the density of each quantity of water (i) added at the subject facility (or facilities) for dilution of waterborne ink systems at the water temperature when the volume of dilution water used is measured.

D_{mi} =the density of each quantity of VOC solvent and miscellaneous solvent-borne waste inks and waste VOC solvents (i) recovered from the subject facility (or facilities), at the solvent temperature when the volume of solvent recovered is measured.

D_{oi} =the density of the VOC solvent contained in each raw ink and related coating (i) used at the subject facility (or facilities), at the coating temperature when the volume of coating used is measured.

D_{wi} =the density of the water contained in each waterborne raw ink and related coating (i) used at the subject facility (or facilities), at the coating temperature when the volume of coating used is measured.

L_{ci} =the measured liquid volume of each color of raw ink and each related coating (i) used at the facility of a corresponding VOC content, V_{oi} or W_{oi} , with a VOC density, D_{oi} , and a coating density, D_{ci} .

L_{di} =the measured liquid volume of each VOC solvent (i) with corresponding density, D_{di} , added to dilute the ink used at

M_{ci} =the mass, determined by direct weighing, of each color of raw ink and each related coating (i) used at the subject facility (or facilities).

M_d =the mass, determined by direct weighing, of VOC solvent added to dilute the ink used at the subject facility (or facilities) during one performance averaging period.

M_g =the mass, determined by direct weighing, of VOC solvent used as a cleaning agent at the subject facility (or facilities) during one performance averaging period.

M_h =the mass, determined by direct weighing, of water added for dilution with waterborne ink systems used at the subject facility (or facilities) during one performance averaging period.

M_m =the mass, determined by direct weighing, of VOC solvent and miscellaneous solvent-borne waste inks and waste VOC solvents recovered from the subject facility (or facilities) during one performance averaging period.

M_o =the total mass of VOC solvent contained in the raw inks and related coatings used at the subject facility (or facilities) during one performance averaging period.

M_r =the total mass of VOC solvent recovered from the subject facility (or facilities) during one performance averaging period.

M_t =the total mass of VOC solvent used at the subject facility (or facilities) during one performance averaging period.

M_v =the total mass of water used with waterborne ink systems at the subject facility (or facilities) during one performance averaging period.

M_w =the total mass of water contained in the waterborne raw inks and related coatings used at the subject facility (or facilities) during one performance averaging period.

P =the average VOC emission percentage for the subject facility (or facilities) for one performance averaging period.

V_{oi} =the liquid VOC content, expressed as a volume fraction of VOC volume per total volume of coating, of each color of raw ink and related coating (i) used at the subject facility (or facilities).

V_{wi} =the water content, expressed as a volume fraction of water volume per total volume of coating, of each color of waterborne raw ink and related coating (i) used at the subject facility (or facilities).

W_{oi} =the VOC content, expressed as a weight fraction of mass of VOC per total mass of coating, of each color of raw ink and related coating (i) used at the subject facility (or facilities).

W_{wi} =the water content, expressed as a weight fraction of mass of water per total mass of coating, of each color of waterborne raw ink and related coating (i) used at the subject facility (or facilities).

(c) The following subscripts are used in this subpart with the above symbols to denote the applicable facility:

a=affected facility.

b=both affected and existing facilities controlled in common by the same air pollution control equipment.

e=existing facility.

f=all affected and existing facilities located within the same plant boundary.

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During the period of the performance test required to be conducted by § 60.8 and after the date required for completion of the test, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility VOC equal to more than 16 percent of the total mass of VOC solvent and water used at that facility during any one performance averaging period. The water used includes only that water contained in the waterborne raw inks and related coatings and the water

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added for dilution with waterborne ink systems.

§ 60.433 Performance test and compliance provisions.

(a) The owner or operator of any affected facility (or facilities) shall conduct performance tests in accordance with § 60.8, under the following conditions:

(1) The performance averaging period for each test is 30 consecutive calendar days and not an average of three separate runs as prescribed under § 60.8(f).

(2) Except as provided under paragraphs (f) and (g) of this section, if affected facilities routinely share the same raw ink storage/handling system with existing facilities, then temporary measurement procedures for segregating the raw inks, related coatings, VOC solvent, and water used at the affected facilities must be employed during the test. For this case, an overall emission percentage for the combined facilities as well as for only the affected facilities must be calculated during the test.

(3) For the purpose of measuring bulk storage tank quantities of each color of raw ink and each related coating used, the owner or operator of any affected facility shall install, calibrate, maintain, and continuously operate during the test one or more:

(i) Non-resettable totalizer metering device(s) for indicating the cumulative liquid volumes used at each affected facility; or

(ii) Segregated storage tanks for each affected facility to allow determination of the liquid quantities used by measuring devices other than the press meters required under item (i) of this article; or

(iii) Storage tanks to serve more than one facility with the liquid quantities used determined by measuring devices other than press meters, if facilities are combined as described under paragraph (d), (f), or (g) of this section.

(4) The owner or operator may choose to install an automatic temperature compensator with any liquid metering device used to measure the raw inks, related coatings, water, or VOC solvent used, or VOC solvent recovered.

(5) Records of the measured amounts used at the affected facility and the

liquid temperature at which the amounts were measured are maintained for each shipment of all purchased material or on at least a weekly basis for:

(i) The raw inks and related coatings used;

(ii) The VOC and water content of each raw ink and related coating used as determined according to § 60.435.

(iii) The VOC solvent and water added to the inks used;

(iv) The VOC solvent used as a cleaning agent; and

(v) The VOC solvent recovered.

(6) The density variations with temperature of the raw inks, related coatings, VOC solvents used, and VOC solvent recovered are determined by the methods stipulated in § 60.435(d).

(7) The calculated emission percentage may be reported as rounded-off to the nearest whole number.

(8) Printing press startups and shutdowns are not included in the exemption provisions under § 60.8(c). Frequent periods of press startups and shutdowns are normal operations and constitute representative conditions for the purpose of a performance test.

(b) If an affected facility uses waterborne ink systems or a combination of waterborne and solvent-borne ink systems with a solvent recovery system, compliance is determined by the following procedures, except as provided in paragraphs (d), (e), (f), and (g) of this section:

(1) The mass of VOC in the solvent-borne and waterborne raw inks and related coatings used is determined by the following equation:

$$(M_o)_k = \sum_{i=1}^k (M_{ci})_k (W_{oi})_k + \sum_{j=1}^m (L_{ci})_k (D_{ci})_k (W_{oi})_k + \sum_{n=1}^n (L_{ci})_k (V_{oi})_k (D_{oi})_k$$

where:

k is the total number of raw inks and related coatings measured as used in direct mass quantities with different amounts of VOC content.

m is the total number of raw inks and related coatings measured as used by volume with different amounts of VOC content or different densities.

n is the total number of raw inks and related coatings measured as used by volume with different amounts of VOC content or different VOC solvent densities.